

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

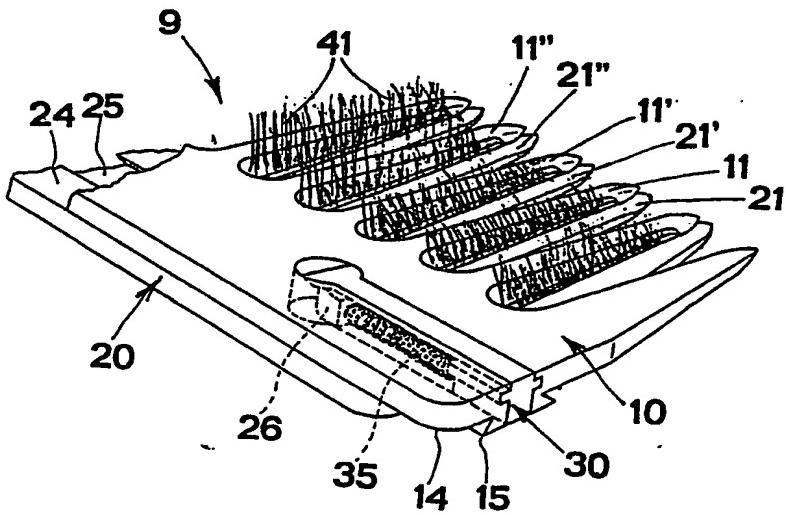


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 5 : A45D 8/12, 24/36, 24/04	A1	(11) International Publication Number: WO 92/10958
		(43) International Publication Date: 9 July 1992 (09.07.92)

(21) International Application Number: PCT/IT91/00009	Published <i>With international search report.</i>
(22) International Filing Date: 18 February 1991 (18.02.91)	
(30) Priority data: 22405 A/90 18 December 1990 (18.12.90) IT	
(71)(72) Applicant and Inventor: CONTU, Giovanni, Francesco [IT/IT]; Piazza delle Muse, 4, I-09100 Cagliari (IT).	
(74) Agent: DI GIOVANNI, Italo; Ufficio Brevetti Dott. Ing. Digiovanni Schmiedt, Via Aldrovandi, 5, I-20129 Milano (IT).	
(81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE, DE (European patent), DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), GR (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, PL, RO, SD, SE, SE (European patent), SN (OAPI patent), SU*, TD (OAPI patent), TG (OAPI patent), US.	

(54) Title: COMB IN TWO PARTS THAT SLIDE LONGITUDINALLY TO HOLD THE HAIR FIRMLY



(57) Abstract

Comb (9) for hair composed of two half-combs (10, 20) longitudinal and substantially the same, each comprising a set of half-teeth (11, 21) at equal centre distances, sliding freely the one in relation to the other so that, by inserting the comb (9) into the hair, having first made the two half-combs (10, 20) slide until the half-teeth (11, 21) are frontally contraposed having overcome the resistance set up by a spring (30), and leaving it alone, the two half-combs (10, 20) will tend to return to their original position thus holding the hair (41) between the half-teeth (11, 21) then contraposed and assisting the hairdresser in his work of cutting the hair.

* See back of page

+ DESIGNATIONS OF "SU"

Any designation of "SU" has effect in the Russian Federation. It is not yet known whether any such designation has effect in other States of the former Soviet Union.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	ES	Spain	MG	Madagascar
AU	Australia	FI	Finland	ML	Mali
BB	Barbados	FR	France	MN	Mongolia
BE	Belgium	GA	Gabon	MR	Mauritania
BF	Burkina Faso	GB	United Kingdom	MW	Malawi
BG	Bulgaria	GN	Guinea	NL	Netherlands
BJ	Benin	GR	Greece	NO	Norway
BR	Brazil	HU	Hungary	PL	Poland
CA	Canada	IT	Italy	RO	Romania
CF	Central African Republic	JP	Japan	SD	Sudan
CG	Congo	KP	Democratic People's Republic of Korea	SE	Sweden
CH	Switzerland	KR	Republic of Korea	SN	Senegal
CI	Côte d'Ivoire	LI	Liechtenstein	SU+	Soviet Union
CM	Cameroon	LK	Sri Lanka	TD	Chad
CS	Czechoslovakia	LU	Luxembourg	TC	Togo
DE	Germany	MC	Monaco	US	United States of America
DK	Denmark				

- 1 -

COMB IN TWO PARTS THAT SLIDE LONGITUDINALLY TO HOLD THE HAIR FIRMLY

The invention concerns a comb for the hair.

The ordinary comb, namely an instrument made of various materials provided with a set of teeth and used to arrange and tidy the hair, is a well-known object.

On the side opposite the teeth combs have a plain surface or some other kind of handgrip.

It is also known that, in order to cut the hair, hairdressers like to use a comb to keep a lock of hair in position and to assist them in cutting it with scissors or clippers. But clearly, if hair passes easily into a comb through the teeth it just as easily slips out and gets out of place obliging the hairdresser to pick up the lock again which often prejudices precision and quality of the cut.

Also well-known are the widely used ornamental combs decoratively shaped and coloured of a size suitable for wearing on the hair and adorning women's heads.

These combs are held in place by metal clips, pieces of elastic and other relatively complex means both as regards their structure and the method of fixing them which more or less limits their aesthetic effect and often poses problems in both their manufacture and use.

The above invention assists the hairdresser in his work and enhances the appearance of ornamental combs as will be explained below.

- 2 -

Subject of the invention is a comb for the hair composed of two longitudinal half-combs virtually identical each comprising a set of half-teeth placed at an equal centre distance in both half-combs and which, lying opposite each 5 other frontally, form the teeth of said comb.

The half-combs slide freely and longitudinally one in relation to the other for a length of travel at least equal to the centre distance between the half-teeth.

Therefore, having put the comb in the hair, by sliding 10 the half combs, the hair will be held between the half-teeth of one half-comb and the half-teeth of the other half-comb and the comb be held firmly among the hair.

In this way the work of a hairdresser is eased during hair cutting and other considerable advantages obtained as well.

15 At the end of the half-teeth there is a beak-like projection turned sideways in one direction in one half-comb and in the opposite direction in the other half-comb.

By lateral contraposition of said beaks the space becomes closed between the half-teeth of the two half-combs and 20 between them the hair is held and prevented from escaping.

Pressure from a spring keeps the two half-combs in an idle position represented by frontal contraposition of the two sets of half-teeth.

Therefore, moving the two half-combs by hand till complete 25 teeth are formed by frontal contraposition of the half-teeth of one half-comb over the half-teeth of the other half-comb adjacent to those contraposed in the idle position with consequent compression of the spring, by putting the comb into the hair and leaving it there the two half-combs will 30 tend to resume the idle position.

The hairs that penetrate among the various teeth will be

- 3 -

Movement of one half-comb in relation to the other is guided by a rib with a dovetail cross section forming part of one half-comb, said rib sliding in a corresponding groove in the other half-comb.

- 5 One end position is determined by a stop-block that can be inserted longitudinally in a seat made for it at the end of one half-comb.

On completion of mounting, said block is stabilized by the head of a longitudinal elastic tongue fixed to it.

- 10 Said head automatically settles into a seat made for it at the end of the mounting seat.

The shape of said seat is such that the head can be lifted by insertion of a finger tip making it easy to disassemble the block.

- 15 In this way the two half-combs can be separated for cleaning or for any other purposes.

The advantages of the invention are evident.

The hairdresser works more easily and quickly and the haircut is more effectively done.

- 20 Ornamental combs obtainable with the system to be patented are easier to put into the hair and retain the position given to them without having to be specially fixed as it is sufficient to leave the comb alone once it has been put in for it to be held in place automatically.

- 25 Characteristics and purposes of the invention will be made still clearer by the following example of its execution illustrated by diagrammatic figures.

Fig.1 Front view of the comb when put into the hair.

Fig.2 Detail of a half-comb, front view.

- 30 Fig.3 The same as above, side view.

Fig.4 The second half-comb, front view.

- 4 -

- Fig. 5 The same as above, side view.
- Fig. 6 Detail of the comb before mounting the locking device, perspective view.
- Fig. 7 The same as above showing an end-of-travel prong.
- 5 Fig. 8 Detail of a comb mounted, in the idle position, perspective view.
- Fig. 9 Detail of a comb ready to be put into the hair, perspective view.
- Fig. 10 Detail of a comb put into the hair.
- 10 Fig. 11 Detail of the locking device, perspective view. The comb 9 consists of two half-combs 10 and 20 respectively comprising the half-teeth 11 and 21. The half-tooth 11 consists of a stem 12 and side beak 13. The half-tooth 21 consists of a stem 22 and side beak 23 projecting in the opposite direction to that of beak 13. The two half-combs 10 and 20 match together with the inner surfaces, 14 and 24 respectively, guided by the longitudinal dovetail-shaped rib 15 of the half-comb 10 that slides in the groove 25 of the half-comb 20.
- 15 20 On the right-hand side of the groove (looking at the figure) there is a prong 26. At the right-hand end of the half-comb 10 a longitudinal recess 16 is made in the comb, slightly wider than the prong 26, there being at its inner end a circular cavity 17.
- 25 30 The small longitudinal channels 19 are made in the sides 18 of said recess 16. Said recess 16 serves to receive the block 30 comprising a base 31 about as wide as the recess 16, said base extending to form an elastic tongue 32 ending in a half-moon head 33 with an edge 30 inclined inwards and slightly narrower

- 5 -

than the diameter of the circular cavity 17 of the half-comb 10.

Said base also has a projecting pin 35 turned in the direction of the head 33 and having a rounded tip. The 5 helical compression spring 40 is mounted on said pin.

The sides 36 of the base have longitudinal ridges 37 made to fit into the small channels 19 in the recess 16 cut in the half-comb 10.

To make the comb the right-hand side (looking at the figures) with the rib 15 on the half-comb 10 is fitted into the left-hand side of the groove 25 in the half-comb 20 until the two half-combs practically match up.

Having done this, the small block 30 is put into the recess 16 making the ridges 37 slide along the channels 19 15 and keeping the head 33 raised above said recess.

On reaching the circular cavity 17, said head spontaneously enters it. In this way the small block 30 is made stable forming one with the half-comb 10 and creating an end-of-travel stop to its movement towards the left in relation 20 to the half-comb 20 as the pin 35 comes up against the prong 26 in said half-comb.

The spring 40 is comprised between said small block 30 and the prong 26.

The end-of-travel stop for movement of the half-comb 10 25 towards the right is obviously created by the bottom of the circular cavity 17 which touches against the prong 26. Left to itself, the comb appears as in Fig. 8 with the half-combs out of line but with the half-teeth 11 and 21, 11' and 21', 11" and 21" superimposed so that they can 30 function as ordinary teeth.

Moving the half-comb 10 right over to the left (Fig. 9),

- 6 -

the spring 40 is found to be compressed and the half-tooth 11 becomes superimposed over the half-tooth 21', the half-tooth 11' lies over the half-tooth 21", and so on.

It is then possible to place the comb in the hair at the 5 preferred position making locks 41 of hair enter the spaces between the half-teeth, such as 11' and 21", 11 and 21' and so forth.

Left to itself the comb will be held stably on the head holding locks of hair 41 between the half-teeth 11 and 21, 10 11' and 21' and so on. (Fig. 10).

To clean the comb, just use a finger tip 42, or better still the nail or even anything pointed, to raise the locking head 33 to position 33' (Fig. 11) and then slide the small block 30 out towards the right.

15 The two half-combs can then be slid apart and separated for easy and thorough cleaning of all their parts.

- 7 -

CLAIMS

1. Comb for hair

characterized in that it is composed of two half-combs (10) (20), longitudinal and substantially the same, each 5 one comprising a set of half-teeth (11) (21) (11') (21') (11'') (21'') of the same centre distance in both the half-combs (10) (20) which, being frontally contraposed, form the teeth of said comb (9), the half-combs (10) (20) sliding freely and longitudinally one in relation to the other 10 for a length of travel at least equal to the centre distance between the half-teeth (11) (21) (11') (21') (11'') (21'') so that, having put the comb (9) into the hair, the half-combs (10) (20) having made their sliding movement, the hair (41) will be firmly held between the half-teeth 15 (11) (11') (11'') of one half-comb (10) and the half-teeth (21) (21') (21'') of the other half-comb (20) with the comb (9) stably in position in the hair (41) thus assisting the work of a hairdresser when cutting the hair (41).

2. Comb for hair as in claim 1,

20 characterized in that at the end of the half-teeth (11) (21) (11') (21') (11'') (21'') there is a beak-like projection (13) (23) facing in one direction in one half-comb (10) and in the opposite direction in the other half-comb (20) so that by lateral contraposition of said beaks (13)(23) 25 the space is closed between the half-teeth (11) (21) (11') (21') (11'') (21'') of the two half-combs (10) (20) which between them hold the hair (41) firmly which can no longer escape through said space.

3. Comb for hair as in claim 1,

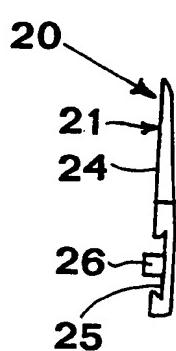
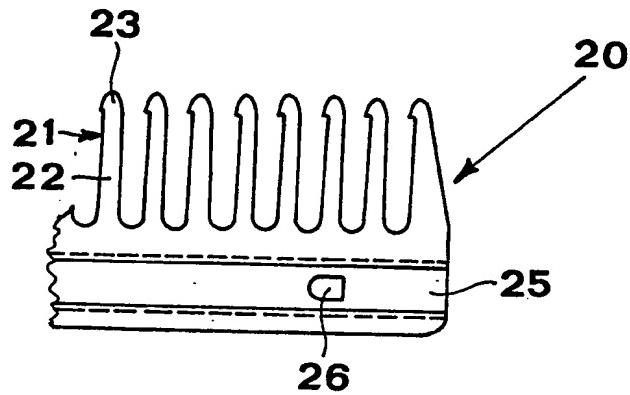
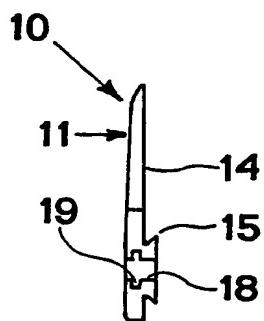
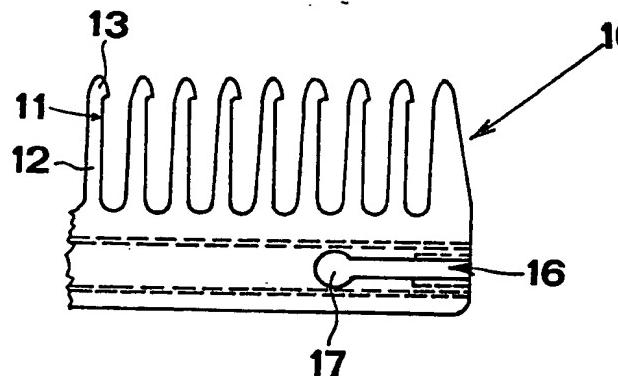
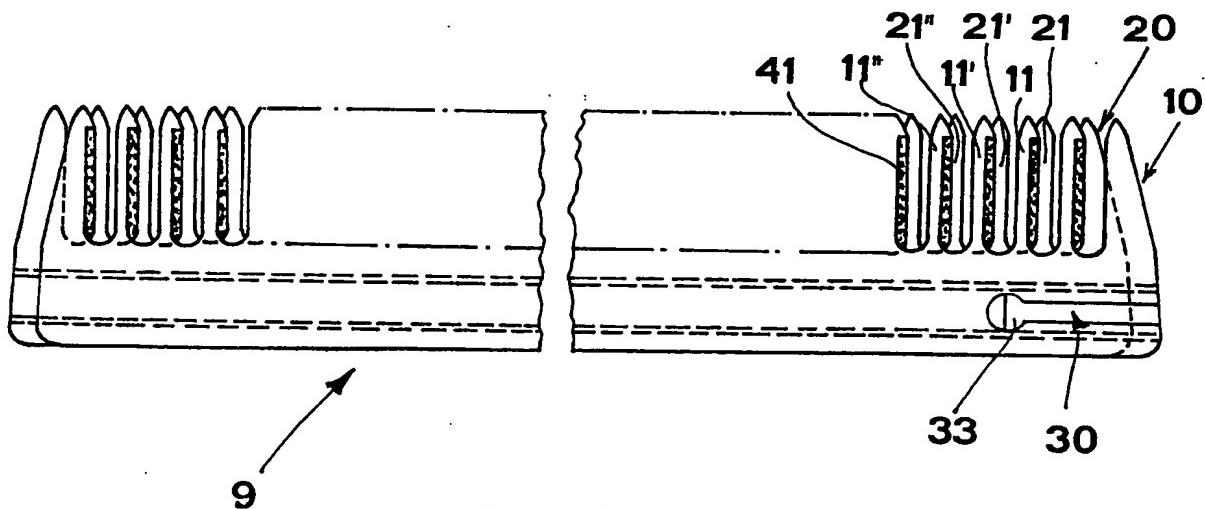
30 characterized in that the two half-combs (10) (20) are kept in an idle position, namely with frontal contraposition of

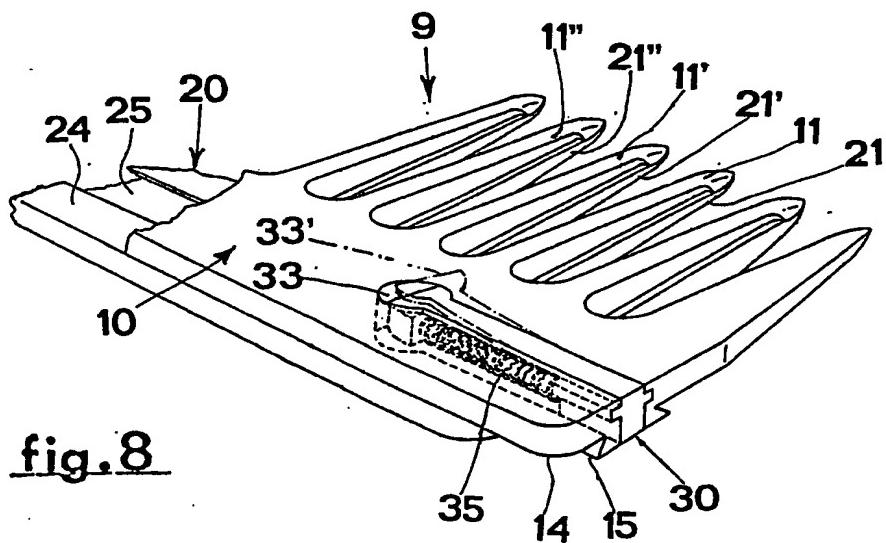
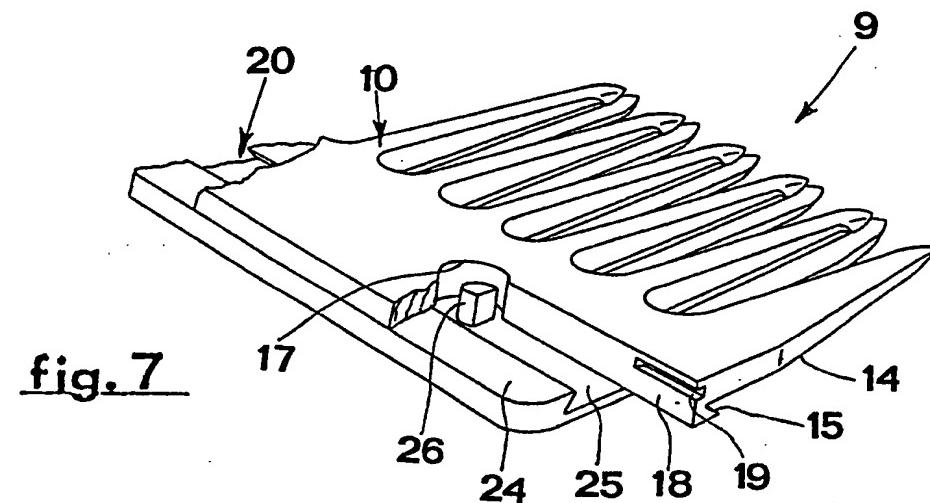
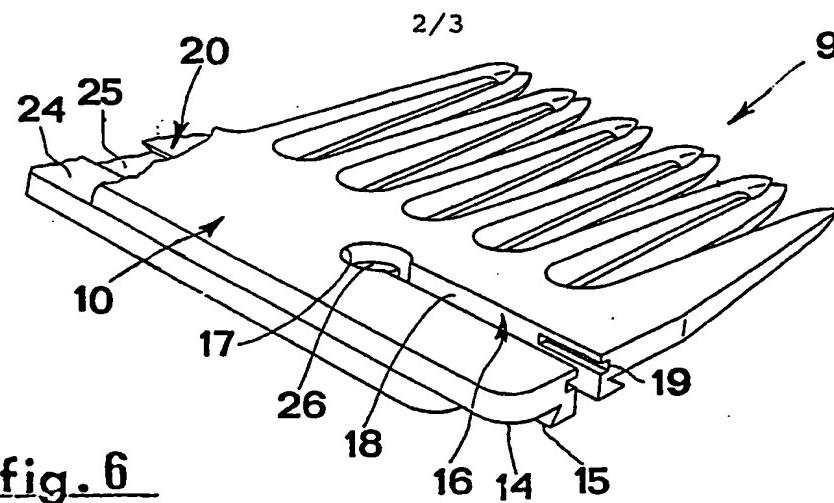
- 8 -

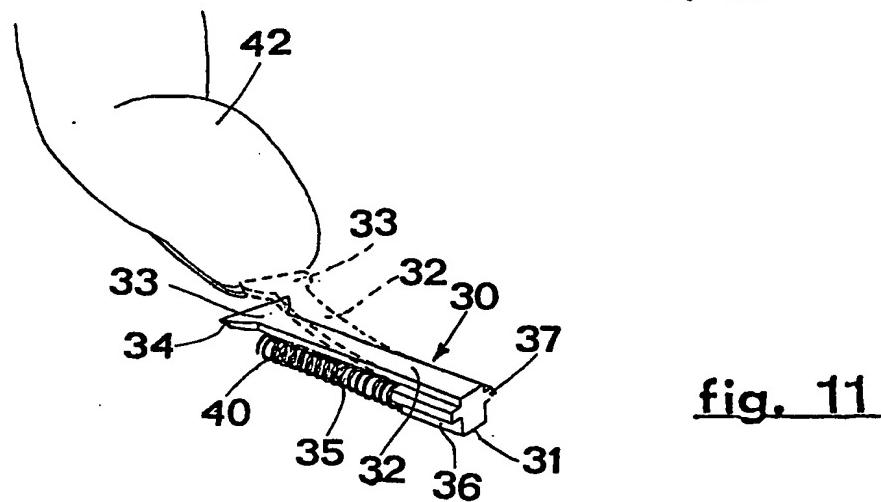
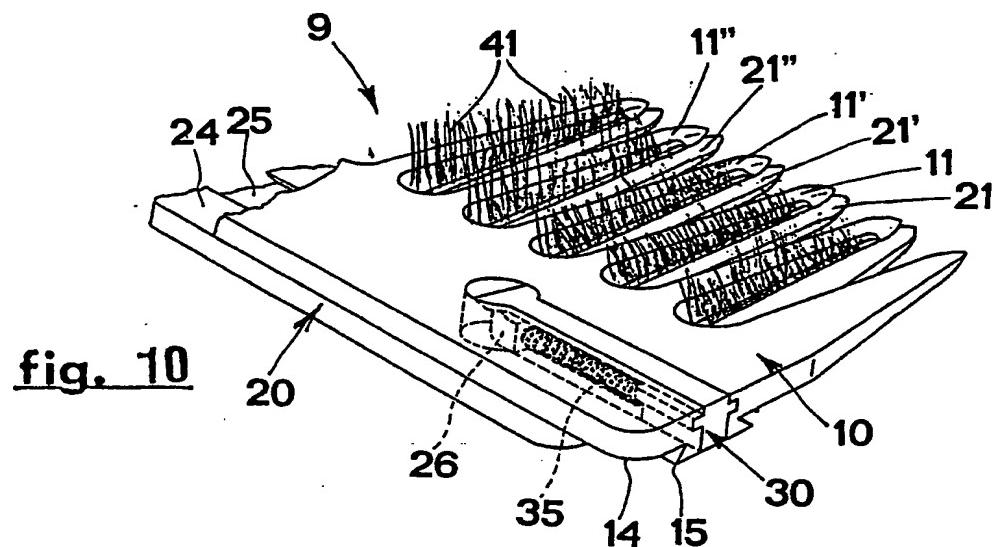
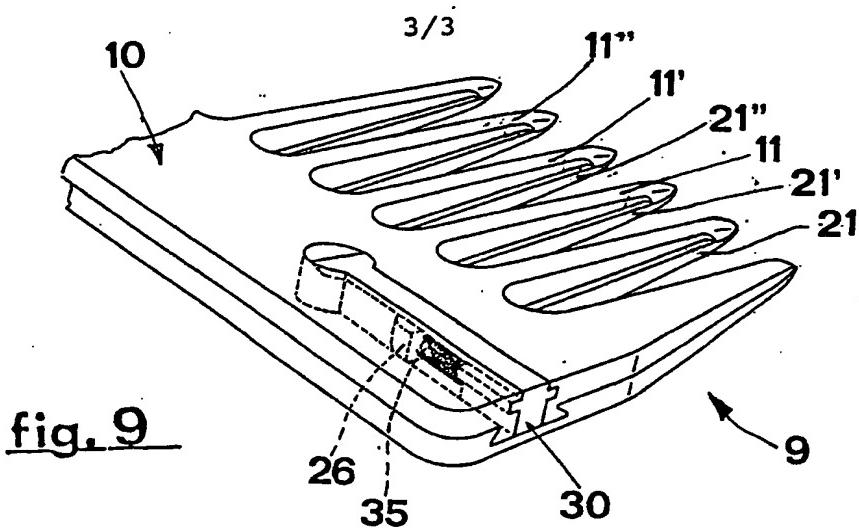
the two sets of half-teeth (11) (21) (11') (21') (11'') (21''), by pressure from a spring (40) in such a way that, having made the two half-combs (10) (20) slide along by hand until complete teeth are formed by frontal contraposition 5 of the half-teeth (11) (11') (11'') of one half-comb (10) with the half-teeth (21) (21') (21'') of the other half-comb (20), adjacent to those that were contraposed in the idle position, with consequent compression of the spring (40), on putting the comb (9) into the hair and 10 leaving it alone, the two half-combs (10) (20) will tend to resume the idle position and the hair (41), having penetrated among the various teeth, will be held there by lateral contraposition of the half-teeth (11) (11') (11'') of one half-comb (10) and the half-teeth (21) (21') (21'') 15 of the other half-comb (20) which were contraposed in the idle position.

4. Comb for hair, as in claim 1, characterized in that the travel of one half-comb (10) in relation to the other (20) is guided by a rib (15) of 20 dovetail cross section in one half-comb (10) sliding in a corresponding groove (25) in the other half-comb (20) said travel being limited by a prong (26) in said groove (25) and by a small block (30), that fits longitudinally 25 in a recess (16) made at the end of one half-comb (10), and is held stable by the head (33) of a longitudinal elastic tongue (32) fixed to it, said tongue automatically settling into its own seat (17) made at the end of said recess (16), the form of said seat (17) being such as to enable said head (33) to be raised by a finger tip to 30 lift out the block (30) easily and separate half-combs (10) (20) for periodical cleaning or for other purposes.

1/3

fig. 5fig. 4fig. 3fig. 2fig. 1





INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 91/00009

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all)⁶

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 A45D8/12 ; A45D24/36 ; A45D24/04

II. FIELDS SEARCHED

Minimum Documentation Searched⁷

Classification System	Classification Symbols
Int.Cl. 5	A45D

Documentation Searched other than Minimum Documentation
to the Extent that such Documents are Included in the Fields Searched⁸III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹

Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	DE,A,3 521 878 (CHAN-KOOK YOON) January 8, 1987 see column 2, line 67 - column 3, line 18; figures 1,4,5	1
Y	see column 3, line 32 - column 3, line 40; figures 2,3	3
A	---	4
Y	US,A,4 230 134 (E.C.PEREZ) October 28, 1980 see abstract; figures 1,2	3
	see column 2, line 27 - column 2, line 49	
A	---	
A	DE,A,3 503 506 (R.BEHNUDI) August 7, 1986 see page 6, line 35 - page 7, line 27; figure 1	1,3
A	---	
A	US,A,2 533 067 (J.TAREN,A.LEON) December 5, 1950 see the whole document	1,3,4
A	---	
A	FR,A,764 468 (L.CLATIN) May 22, 1934 see the whole document	1,4

	-/-	

¹⁰ Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

¹¹ later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention¹² "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step¹³ "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.¹⁴ "A" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search

1

31 JULY 1991

Date of Mailing of this International Search Report

08.08.91

International Searching Authority

EUROPEAN PATENT OFFICE

Signature of Authorized Officer

Eccetto M.



III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	FR,A,2 491 744 (P.BOUDEL) April 16, 1982 see page 3, line 8 - page 4, line 5; figures 1-3 ----	1,2,4

ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.

1791 00009

SA 44982

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

31/07/91

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-3521878	08-01-87	None	
US-A-4230134	28-10-80	None	
DE-A-3503506	07-08-86	None	
US-A-2533067		None	
FR-A-764468		None	
FR-A-2491744	16-04-82	None	